



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

| APPLICATION NUMBER | FILING DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO. |
|--------------------|-------------|-----------------------|------------------|
|--------------------|-------------|-----------------------|------------------|

08/838,910 04/11/97 TANAKA

| |
|----------|
| A 235648 |
| EXAMINER |

A1M1/1222

CUSHMAN DARBY AND CUSHMAN
INTELLECTUAL PROPERTY GROUP OF PILLSBURY
MADISON AND SUTRO
9TH FLR EAST TOWER 1100 NEW YORK AVE NW
WASHINGTON DC 20005-3918

| | |
|---------------|--------------|
| CLINICAL UNIT | PAPER NUMBER |
|---------------|--------------|

1102
DATE MAILED:

12/22/97

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

- ☒ Responsive to communication(s) filed on 11-12-97
- ☒ This action is FINAL.

- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- ☒ Claim(s) 1-20 is/are pending in the application.
- Of the above, claim(s) _____ is/are withdrawn from consideration.
- ☒ Claim(s) 12-14 is/are allowed.
- ☒ Claim(s) 1-11, 15-20 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☐ Notice of Reference Cited, PTO-892
- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--SEE OFFICE ACTION ON THE FOLLOWING PAGES--

BEST AVAILABLE COPY

Art Unit: 1102

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Csanitz et al.

Applicant argues that his claims call for a clearance between the high emissivity layer and the internal electrode and no such clearance is present in Csanitz.

This argument is not persuasive. Applicant's claims, contrary to his assertion, do not recite a clearance between the internal electrode and the high emissivity layer. Instead, the clearance is recited to be between the internal electrode and the heater. In Csanitz, there is indeed a clearance between the internal electrode and the heater and his clearance is defined by the alumina layer 39. This layer is clearly more than 0.1 mm thick since the particles making up the layer have diameters larger than that. See col. 2, line 10 of the patent.

Applicant also argues that the alumina layer 39 in Csanitz transmits heat by conduction rather than radiation.

This argument is also not persuasive. Whether such a difference exists or not is really not relevant, when there is nothing in the claims spelling out that difference.

Claims 4, 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Csanitz et al.

Applicant argues that the surface roughness and the porosity of the high emissivity layer called for by his claims are not obvious.

This argument is not persuasive. The alumina layer of Csanitz is made of particles. Thus, it is very likely to have a high surface roughness and high porosity. Applicant has not shown that

Art Unit: 1102

there is in fact differences between his surface roughness and porosity and those of the patent, or if there are in fact differences they would be in any way critical.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Csanitz et al in view of Agarwal et al.

Applicant appears to merely argue that Agarwal does not cure the deficiency of the primary reference. Thus, no separate argument has been presented and no additional comment is needed.

Claims 1-4, 6-8, 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Togawa et al in view of Sakurai et al.

Applicant argues that the references do not show an internal electrode of a material with a emissivity of more than 0.3.

This argument is not persuasive in that Togawa shows a SiC internal electrode 14 (col. 3, lines 54-62). Since SiC is one of the specific embodiments of applicant's high emissivity material, it is clear that Togawa does disclose an internal electrode with an emissivity of more than 0.3.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Togawa et al in view of Sakurai et al and Agarwal et al.

Applicant does not appear to present a separate argument here.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai et al in view of Agarwal et al.

Art Unit: 1102

Applicant argues that Agarwal's heater is disposed around the sensor. Thus, there is no problem with heat accumulation unlike the internal heater location of Sakurai and applicant.

This argument is not persuasive since Agarwal is relied on here merely for the purpose of showing SiN, AlN and SiC to be well-known heater materials.

Applicant appears to also argue that the references do not show a clearance of 0.1mm or more.

This argument is not persuasive. A dimension of 0.1 mm is very small. Figure 1 of Sakurai clearly shows a clearance between the heater 5 and the internal electrode, and it would be highly improbable that this clearance is less than 0.1 mm. Besides, since it is necessary for the reference gas to reach the internal electrode, it would be obvious to one of ordinary skill in the art that sufficient space should be provided for reference gas flow.

Claims 1-4, 6-8, 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai et al in view of Hackh's.

Applicant argues that there is no teaching of a clearance between the high emissivity layer and the internal electrode.

This argument is not persuasive. First of all, the clearance is between the heater and the internal electrode and not between the high emissivity layer and the internal electrode. Second, figure 1 of Sakurai is seen to show a clearance between the heater and the internal electrode.

Applicant also appears to argue that there is no teaching by the references of an emissivity of 0.3 or greater.

Art Unit: 1102

This argument is not persuasive. Hackh's discloses platinum black. Since one of applicant's specific embodiments is platinum black, it presumably has the 0.3 emissivity called for.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai et al in view of Hackh's and Agarwal et al.

Applicant does not appear to present a separate argument here.

Claims 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakurai et al in view of Hackh's and Topp et al.

Applicant does not appear to present a separate argument here.

Claims 15, 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 15 and 17, lines 1-2, "said material" is vague in that there is more than one "material" in their parent claims.


The Japanese document '152 has been considered to the extent of the English abstract provided by applicant. It appears that heater 7 of '152 makes contact at least at its lower end with the internal surface of the solid electrolyte and thus the internal electrode. Accordingly, there would not be any clearance between them.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1102

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

The examiner can be reached at 703-308-3329. Any inquiry of a general nature should be directed to the receptionst at 703-308-0661.


Ta Tung

Primary Examiner

Art Unit 1102